

REMARKS / DISCUSSION OF ISSUES

In response to the final Office action¹ mailed on 13 May 2009 ("Office action"), the applicants respectfully request reconsideration. All of the issues raised in the Office action have been carefully considered and are addressed herein.

Claims 1-5, 7-8, 10, and 12-20 are pending in the application.

I. Rejection of claim 20 under 35 U.S.C. 112, second paragraph

The Examiner rejects claim 20 under 35 U.S.C. 112, second paragraph. The applicants respectfully traverse this rejection.

The Examiner asserts that the use of the term 'extended LED' renders the claim indefinite. The applicants respectfully disagree with this assertion. As is well known in the art, and as the term implies, an extended LED is an LED that is extended in at least one dimension, as distinguished from the more common point-source LED. See, for example, USP 7,347,584.

Because both the plain meaning and the meaning within the art of the term 'extended LED' is clear, the applicants respectfully request the Examiner's reconsideration of the rejection of claim 20 under 35 U.S.C. 112, second paragraph.

II. Rejection of claims 1, 2, 8, 14, and 18 under 35 U.S.C. 102(a)

The Examiner rejects claims 1, 2, 8, 14, and 18 under 35 U.S.C. 102(a) over Schevardo (EP 1,496,380). The applicants respectfully traverse this rejection.

Shevardo does not teach an illumination device that includes a solid light guide and a light extraction device adapted to extract the light from the solid light guide, wherein the light extraction device includes a surface area S_1 that is in optical contact with the solid light guide and extracts the light by preventing the total internal reflection at the surface area S_1 , as specifically claimed in claim 1, upon which claims 2-4 depend. Independent claim 8, upon which claims 10 and 12-20 depend, includes similar features.

¹ The Office action contains statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicant(s) decline to automatically subscribe to any statement or characterization in the Office action.

MPEP 2131 states:

"A claim is anticipated only if *each and every element* as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)... "The *identical invention* must be shown in as *complete detail* as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Also, the Board of Patent Appeals and Interferences has consistently upheld the principle that the burden of establishing a prima facie case resides with the Office, and to meet this burden, the Examiner must specifically identify where each of the claimed elements is found in the prior art:

"there must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention. *Scripps Clinic & Research Found. v. Genentech, Inc.*, 927 F.2d 1565, 1576, 18 USPQ2d 1001, 1010 (Fed. Cir. 1991). To meet [the] burden of establishing a prima facie case of anticipation, the examiner must explain how the rejected claims are anticipated by pointing out where *all* of the specific limitations recited in the rejected claims are found in the prior art relied upon in the rejection." *Ex Parte Naoya Isoda*, Appeal No. 2005-2289, Application 10/064,508 (BPAI Opinion October 2005).

Schevardo teaches a single light guide, and does not teach a device having a surface in optical contact with the light guide. The Examiner asserts that the lower section of Schevardo's single light guide is a device that has a surface in contact with the upper section of Schevardo's light guide. The applicants respectfully disagree with this assertion. Schevardo's lower section is not a 'device', and does not have a 'surface' that is in contact with the upper section.

Terms in a patent are interpreted in view of the applicants' specification, and in view of their common usage. An integral part of an object is not a 'device', per se, in either common usage or in the context of the applicants' specification. More significantly, a 'surface' is an exterior boundary of an object, and does not exist within an integral object. There is no 'surface' within Schevardo's single light guide.

Contrary to the Examiner's assertion, the proper term for the area identified by the Examiner at the junction of the upper and lower sections of Schevardo's single light guide is the 'cross-section area', not the 'surface area'. These two terms are not synonymous, and are not 'identical' as required by MPEP 2131 to support this rejection.

The applicants teach and claim an illumination device that includes a light guide and a light extraction device in contact with the light guide. By providing this configuration, the light extraction device can be designed and manufactured independent of the light guide, and the design of the light extraction device can vary based on the particular intended function of the illumination device. As taught by the applicants, for example, the light extraction device can be designed to provide a particular beam shape, a particular aspect ratio, and so on, independent of the design of the light guide. Of particular note, the separation of the light guide and the light extraction device allows for functional elements, such as filters and polarizers to be inserted between the light guide and the light extraction device.

Because Schevardo does not teach a device with a surface area in contact with a surface of a light guide, as claimed in each of claims 1 and 8, the applicants respectfully maintain that the rejection of claims 1, 2, 8, 14, and 18 under 35 U.S.C. 102(a) over Schevardo is unfounded, and should be withdrawn.

Further, Schevardo fails to teach each of the elements of dependent claims 2, 14, and 18.

The Examiner asserts that Schevardo discloses that the light source includes a single extended LED. The applicants respectfully disagree with this assertion. Schevardo's LED is a point-source LED, and Schevardo's light guide is designed to operate with a point-source LED.

The Examiner asserts that Schevardo discloses that the light extraction means includes a prismatic optical component, but provides no basis for this assertion. None of the elements in the figure provided by the Examiner appears to be shaped as a prism. If this rejection is maintained, the applicants request that the Examiner specifically identify where Schevardo teaches a prismatic optical component.

The Examiner also asserts that Schevardo discloses that the light circulation device has a cross-section thickness that is less near the light extraction area than at the light receiving surface, and also provides no basis for this assertion. Assuming in argument that the upper section of Schevardo's light guide corresponds to the light

circulation device, the thickness of the upper section of Schevardo's light guide is thickest at the light extraction area.

Because Schevardo fails to teach the elements of claims 2, 14, and 18, the applicants respectfully maintain that the rejection of claims 2, 14, and 18 under 35 U.S.C. 102(a) over Schevardo is unfounded, and should be withdrawn.

III. Rejection of claims 3 and 20 under 35 U.S.C. 103(a)

The Examiner rejects claims 3 and 20 under 35 U.S.C. 103(a) over Schevardo. The applicants respectfully traverse this rejection.

Claims 3 and 20 are dependent upon claims 1 and 8, respectively, and in this rejection, the Examiner relies on Schevardo for teaching the elements of claims 1 and 8. As noted above, Schevardo fails to teach the elements of claims 1 and 8. Accordingly, the applicants respectfully maintain that the rejection of claims 3 and 20 under 35 U.S.C. 103(a) that relies on Schevardo for teaching the elements of claims 1 and 8 is unfounded, and should be withdrawn.

Further, the applicants respectfully disagree that one of skill in the art would use an array of LEDs, as claimed in claim 3, or an extended LED, as claimed in claim 20, in Schevardo's design. Of particular note, Schevardo teaches a cylindrical-hemispherical light guide that is specifically designed to amplify the light from a point-source LED. The applicants respectfully maintain that, because of the specific shape of the light guide, Schevardo's device is unsuitable for use with an array of LEDs, or an extended LED, and MPEP 2143 clearly states:

"If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification."

Accordingly, the applicants respectfully maintain that the rejection of claims 3 and 20 under 35 U.S.C. 103(a) over Schevardo is unfounded, and should be withdrawn.

IV. Rejection of claims 1-5, 7-8, 10, 13-17 and 19-20 under 35 U.S.C. 103(a)

The Examiner rejects claims 1-5, 7-8, 10, 13-17 and 19-20 under 35 U.S.C. 103(a) over Miyashita et al. (USP 6,011,602, hereinafter Miyashita) and Umemoto et al. (USP 6,590,625, hereinafter Umemoto). The applicants respectfully traverse this rejection.

The combination of Miyashita and Umemoto fails to teach an illumination device that includes a solid light guide and a light extraction device adapted to extract the light from the solid light guide, wherein the light extraction device includes a surface area S_1 that is in optical contact with the solid light guide and extracts the light by preventing the total internal reflection at the surface area S_1 , as specifically claimed in claim 1, upon which claims 2-4 depend. Independent claims 5 and 8, upon which claims 7, 10 and 12-20 depend, include similar features.

The Examiner asserts that Miyashita teaches a light extraction device that includes a surface area S_1 that is in optical contact with the solid light guide and extracts the light by preventing the total internal reflection at the surface area S_1 . This assertion is incorrect. As in the rejection based on Schevardo, the Examiner divides Miyashita's single light guide into two sections and mistakenly identifies a cross-section area in Miyashita as a surface area.

Miyashita teaches a single light guide with a surface that includes a plurality of projections and recessions. The side surfaces of the projections are substantially perpendicular to the upper surface of the recessions, thereby allowing light that is internally reflected by the upper surface of the recessions to exit the side surface of the projections. Miyashita's projections are not 'devices' per se, and they only have surfaces on the top and sides of the projections; they do not have a surface area that is in contact with a surface of the light guide, as taught and claimed by the applicants.

Because Miyashita fails to teach a light extraction device that includes a surface area S_1 that is in optical contact with the solid light guide and extracts the light by preventing the total internal reflection at the surface area S_1 , as relied upon by the Examiner in support of this rejection, the applicants respectfully maintain that the rejection of claims 1-5, 7-8, 10, 13-17 and 19-20 under 35 U.S.C. 103(a) over Miyashita and Umemoto is unfounded, and should be withdrawn.

Further the combination of Miyashita and Umemoto fails to teach or suggest each of the particular features of dependent claims 2, 4, 7, 13, 15, 16, and 20.

With regard to claims 2 and 20, neither Miyashita nor Umemoto teaches an extended LED. Miyashita does not address LED light sources, and Umemoto specifically teaches point-source LEDs (Umemoto, column 9, lines 36-47).

With regard to claims 4 and 7, the Examiner asserts that one of skill in the art would be motivated to shape Miyashita's projections with an aspect ratio of 16:9, "because 16:9 is well-known in the art as a common aspect ratio to produce a sharp, clear image" (Office action, page 8, lines 7-8). This assertion is incorrect. The aspect ratio, per se, has no direct bearing on whether a sharp or clear image is produced.

In the applicants' claimed invention, the aspect ratio of the surface area in contact with the light guide will determine the shape of the light beam produced. Even assuming in argument that Miyashita's projections are light extraction devices, this relationship does not exist in Miyashita, because the shape of Miyashita's light beam is determined by the placement and shape of the plurality of projections, and not by the shape of the base of the projections. Creating base areas having a 16:9 aspect ratio in Miyashita will not provide a light beam having a 16:9 aspect ratio, and one of skill in the art would have no reason to shape Miyashita's projections in this particular fashion.

In like manner, with regard to claim 13, shaping Miyashita's projections as a compound parabolic collimator will not produce a collimated light beam, and one of skill in the art would have no reason to shape Miyashita's projections in this particular fashion.

With regard to claims 15 and 16, assuming, in argument, that the projections of Miyashita's integral light guide correspond to light extraction devices, the fact that these projections are part of the integral light guide precludes the introduction of a reflective polarizer in the optical path between the light extraction device and the light guide, as specifically claimed in each of claims 15 and 16.

The Examiner notes that Miyashita teaches a polarizer on the side walls of the projections; however, this polarizer is not in the optical path between the asserted light extraction device and the asserted light guide.

Because the combination of Miyashita and Umemoto fails to teach or suggest the features of claims 2, 4, 7, 13, 15, 16, and 20, the applicants respectfully maintain that the rejection of claims 2, 4, 7, 13, 15, 16, and 20 under 35 U.S.C. 103(a) over Miyashita and Umemoto is unfounded, and should be withdrawn.

V. Rejection of claim 12 under 35 U.S.C. 103(a)

The Examiner rejects claim 12 under 35 U.S.C. 103(a) over Miyashita, Umemoto, and Mol et al. (USP 5,856,855, hereinafter Mol). The applicants respectfully traverse this rejection.

Claim 12 is dependent upon claim 8, and in this rejection, the Examiner relies on the combination of Miyashita and Umemoto for teaching the elements of claim 8. As noted above, the combination of Miyashita and Umemoto fails to teach the elements of claim 8. Accordingly, the applicants respectfully maintain that the rejection of claim 12 under 35 U.S.C. 103(a) that relies on the combination of Miyashita and Umemoto for teaching the elements of claim 8 is unfounded, and should be withdrawn.

Additionally, as noted above, shaping Miyashita's projections as collimator, as proposed by the Examiner, will not produce a collimated light beam, and one of skill in the art would have no reason to shape Miyashita's projections in this particular fashion.

In view of the foregoing, the applicants respectfully request that the Examiner withdraw the objection(s) and/or rejection(s) of record, allow all the pending claims, and find the application to be in condition for allowance. If any points remain in issue that may best be resolved through a personal or telephonic interview, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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